AMWT ttbar max weight solution results with jet smearing (y) vs no jet smearing (x)
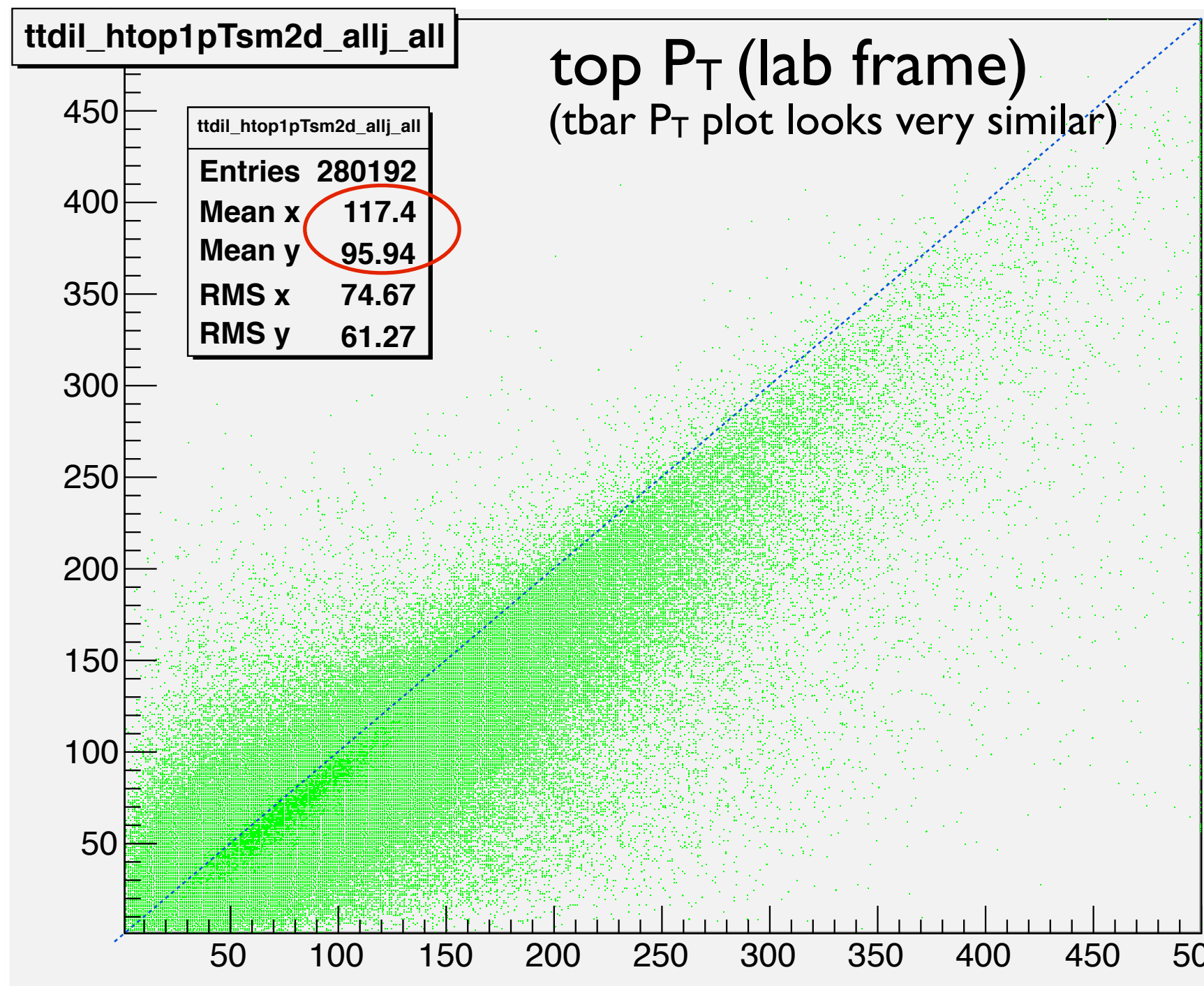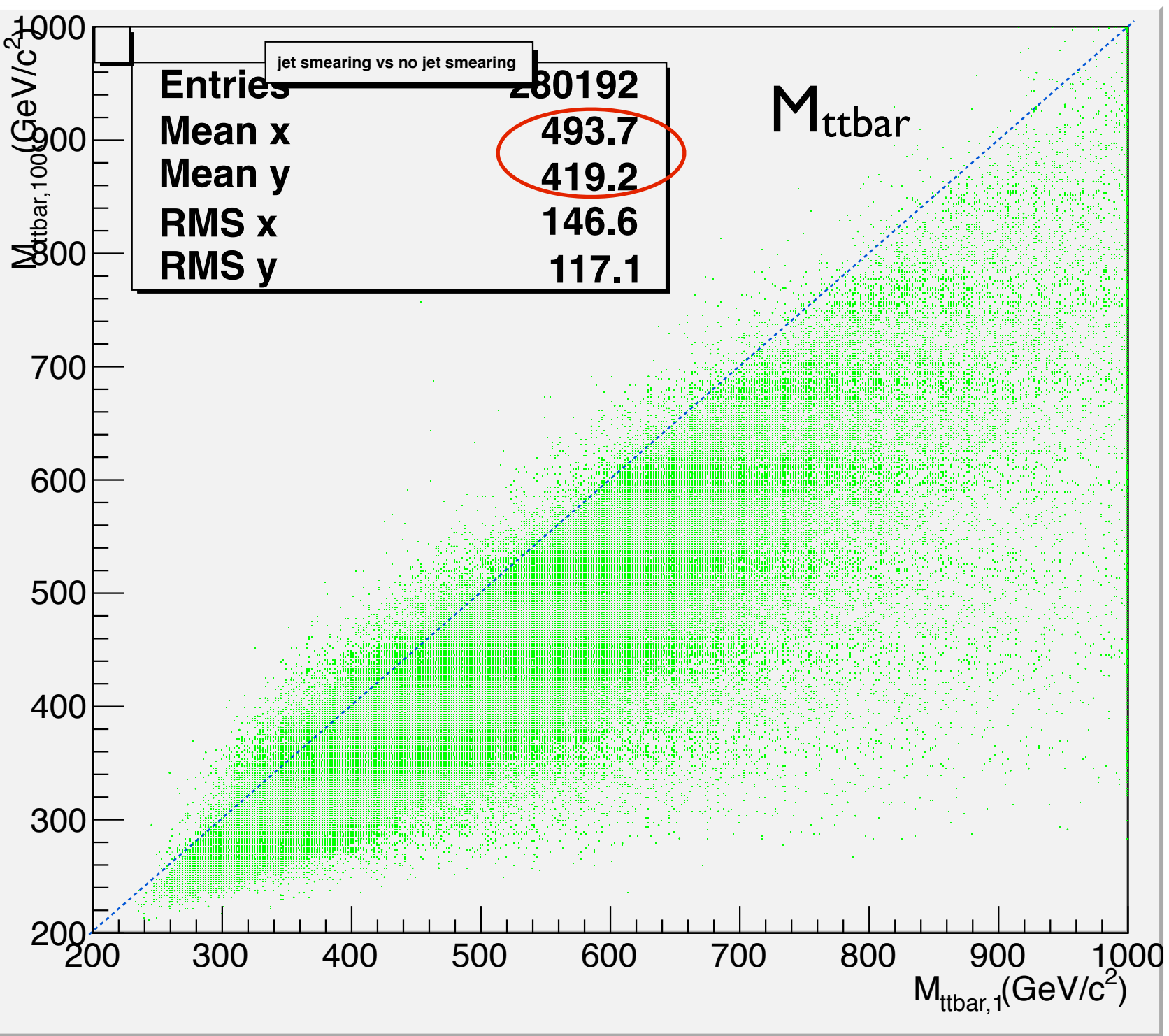sample: TT_TuneZ2_7TeV-mcatnlo (only events with solutions in both cases are plotted)
100 tries used for jet smearing. Top mass estimate results (from max sum of weights) next slide.

jet smearing vs no jet smearing	
Entries	280192
Mean x	493.7
Mean y	419.2
RMS x	146.6
RMS y	117.1

M_{ttbar}

$M_{ttbar,1}$ (GeV/c^2)

ttdil_htop1pTsm2d_allj_all

top P_T (lab frame)
(tbar P_T plot looks very similar)

ttdil_htop1pTsm2d_allj_all	
Entries	280192
Mean x	117.4
Mean y	95.94
RMS x	74.67
RMS y	61.27

clear bias towards lower P_T and M_{ttbar}

M_t is unbiased because it is taken from the value with the max sum of weights, so the jet smearing tries are summed (instead of taking the single try with max weight, which biases towards large smears)
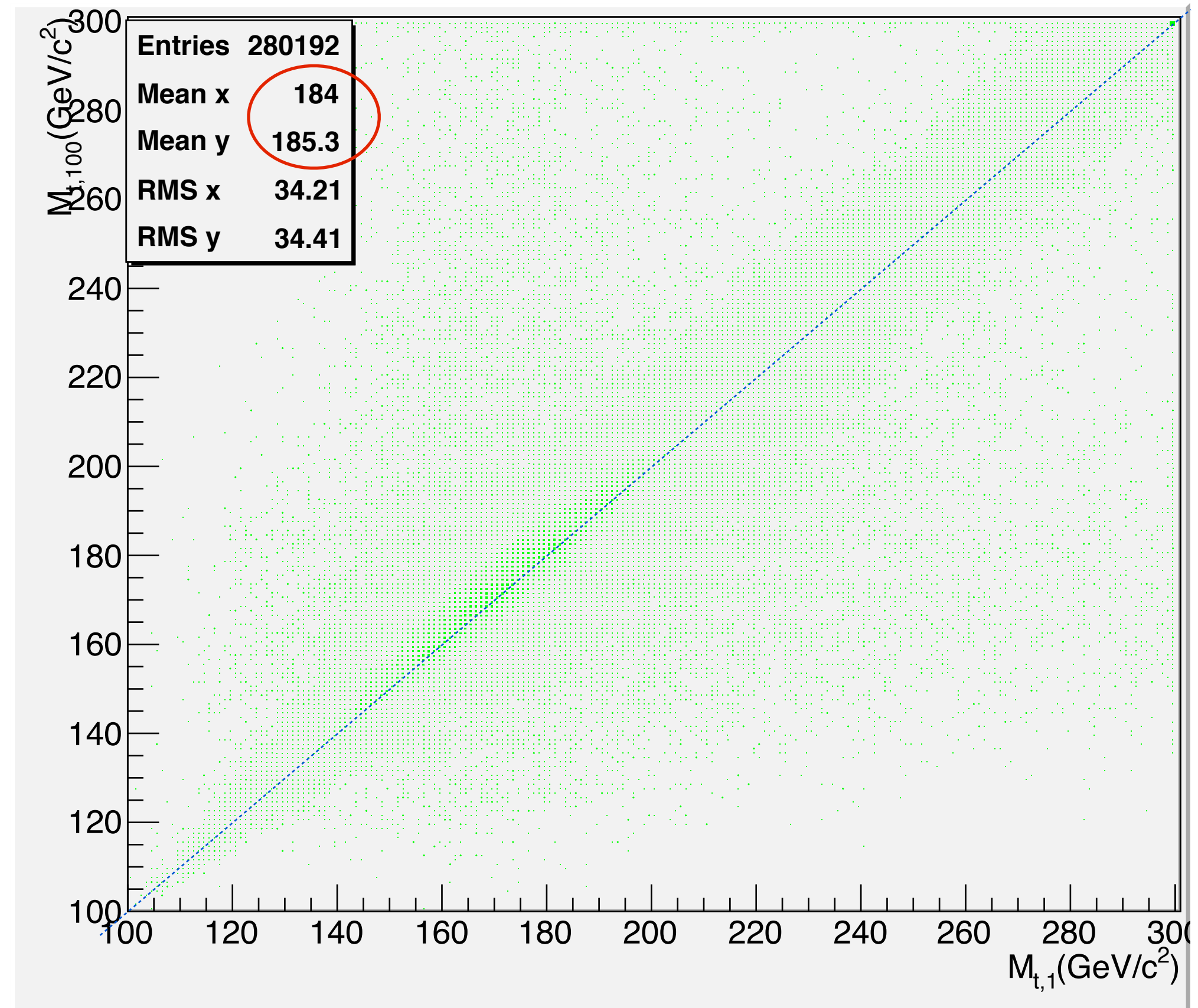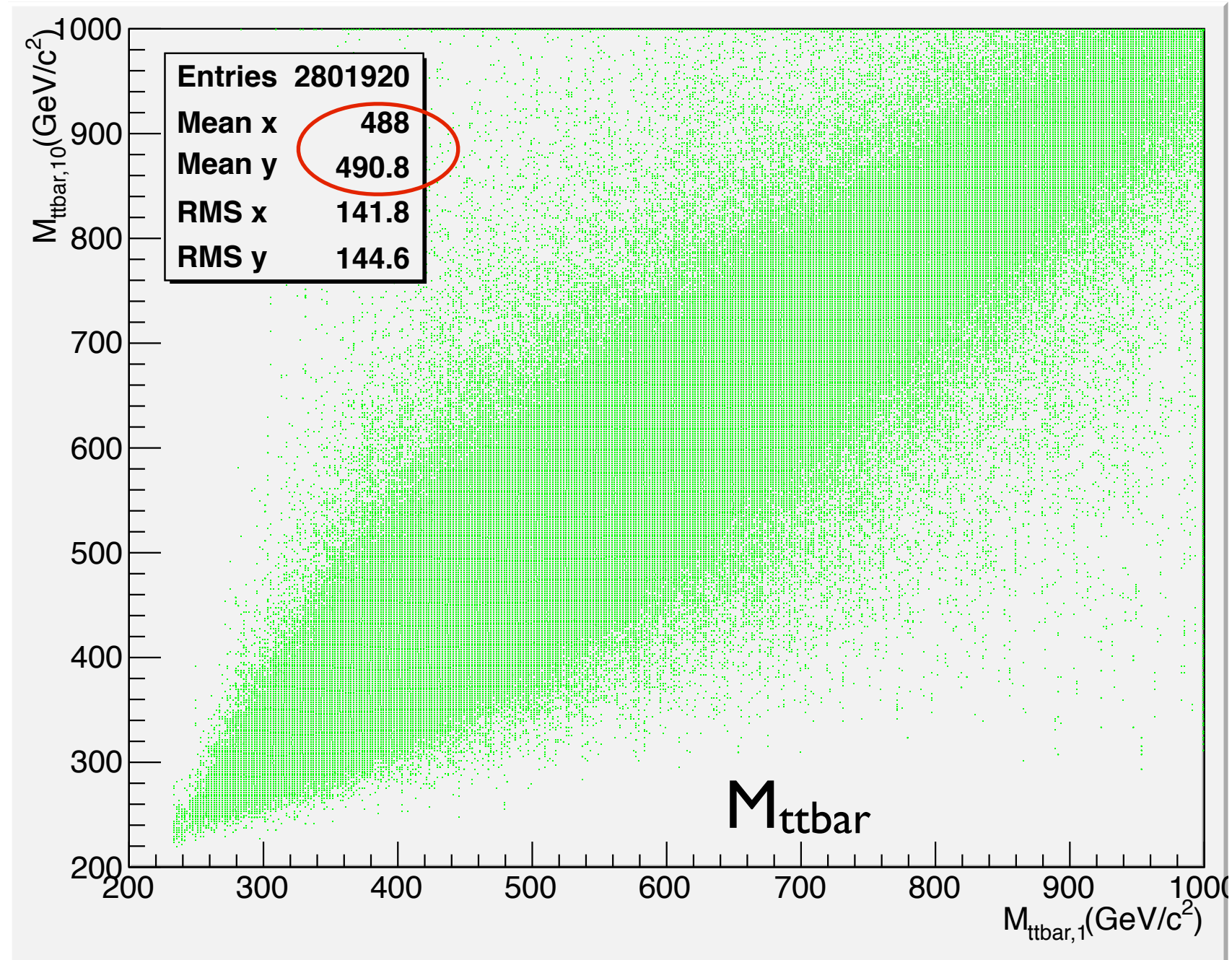
now try to remove M_{ttbar} bias by filling the AMWT solution for each jet smearing try instead of just the try with maximum weight (note I reduced from 100 to 10 tries to save time)

try with max weight (same as slide 1)*

Entries   280192
Mean x   492.9
Mean y   453.2
RMS x   146.1
RMS y   132.6

M_{ttbar}
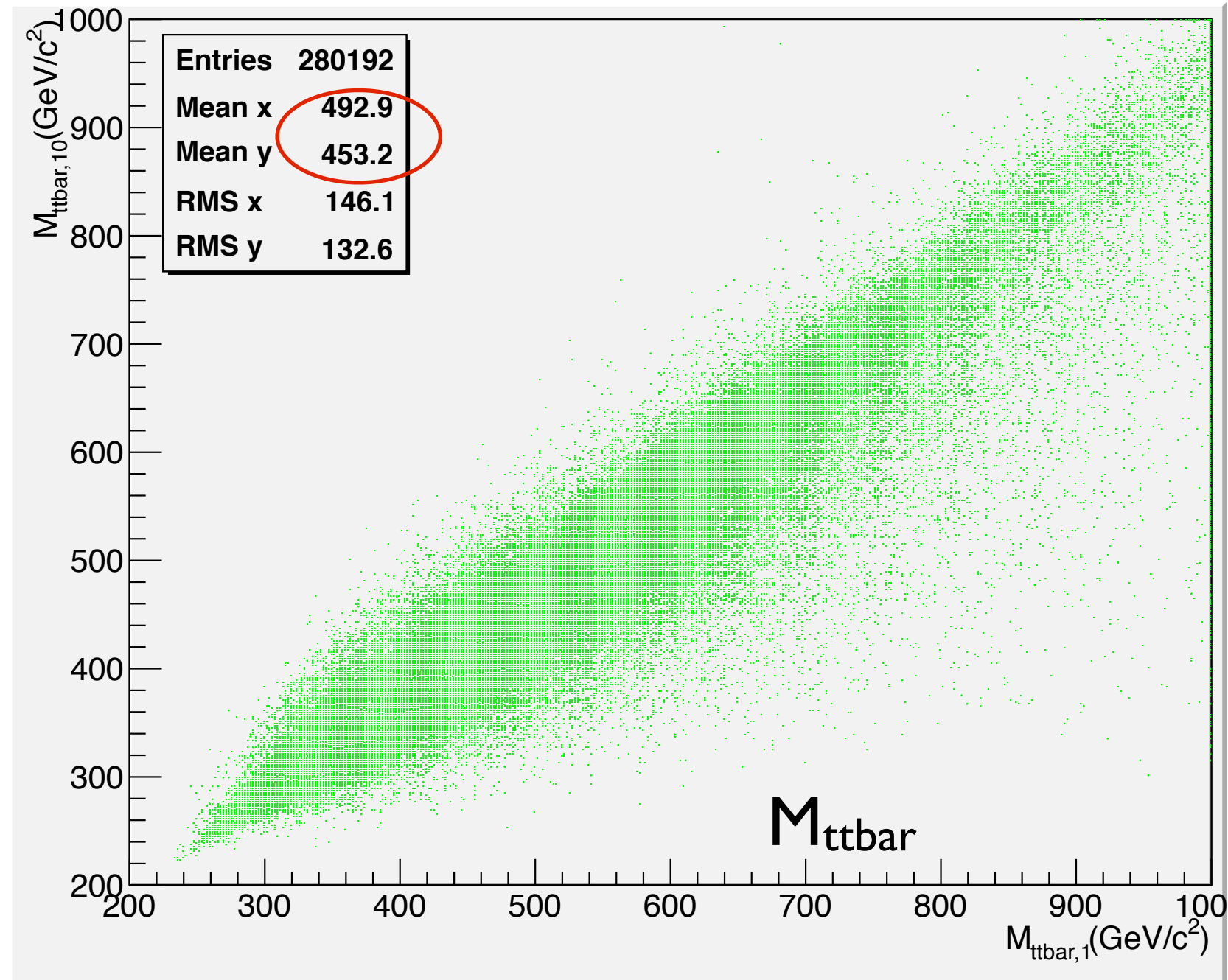
all 10 jet smearing tries filled for each event

Entries   2801920
Mean x   488
Mean y   490.8
RMS x   141.8
RMS y   144.6

M_{ttbar}

✳ except only 10 tries rather than 100, so the bias is reduced

bias is removed